S Vocational
373.246 enrollment trends
V1lvetm in Montana
1990

VOCATIONAL EDUCATION TRENDS IN MONTANA

STATE DOCUMENTS COLLECTION

JAN 7 1992

MONTANA STATE LIBRARY
1515 E. 6th AVE.
HELENA, MONTANA 59620

STUDY OF ENROLLMENTS 1983-1990

PLEASE RETURN

MONTANA COUNCIL ON VOCATIONAL EDUCATION

MONTANA STATE LIBRARY
S 373.246 V11vetm 1990 c.1
Vocational enrollment trends in Montana
3 0864 00075625 7

MCVE MEMBERSHIP -- FY 1991-92

Fred "Rocky" Clark, Business Manager, IBEW Local 44, Butte. Serves on the MCVE Coordination and Communication Committee.

Jeff Dietz, Assistant Administrator, Billings Skyview High School. Serves as co-chair of the MCVE Coordination and Communication Committee.

Ann Haagenstad, Semi-retired, Former Director, Community Education, Special Education, Clancy. Serves on the MCVE Evaluation and Employment Committee.

Jon Jourdonnais, Orthodontist, Great Falls. MCVE chairman.

August "Gus" Korb, Assistant Vice President and Acting Dean of the School of Business and Technology, Northern Montana College, Havre. Serves as co-chairman of the MCVE Evaluation and Employment Committee.

Dennis Lerum, Director, Missoula Vocational-Technical Center. Serves as co-chairman of the MCVE Policy and Planning Committee.

Jesse O'Hara, School Counselor, Great Falls School District. Serves on the MCVE Coordination and Communication Committee.

Robert Schaal, Dean of Educational Services, Flathead Valley Community College, Kalispell. Serves as co-chairman of the MCVE Policy and Planning Committee.

James " Jim" Schultz, Retired Vocational Agriculture Teacher, former State Representative, District #30, Lewistown. Serves as co-chairman of the MCVE Evaluation and Employment Committee.

Gordon H. Simmons, Retired Army Colonel, Consultant, Agronomy and Plant Breeding, Missoula. MCVE vice chairman and serves on the MCVE Policy and Planning Committee.

Charles "Chuck" Swysgood, Executive Director, Beaverhead Development Corp., State Representative, District #73, Dillon. Serves on the MCVE Evaluation and Employment Committee.

Avis Ann "Sanny" Tobin, Management Consultant, Helena. Serves as co-chair of the MCVE Coordination and Communication Committee.

Howard Williams, Businessman, Pioneer Telephone Service, Helena. Serves on the MCVE Policy and Planning Committee.

COUNCIL STAFF

James W. Fitzpatrick
Executive Director
Lucie Willson
Administrative Assisant

Executive Management Building
1228 - 11th Avenue
Helena, MT 59620

Phone - 406-444-2964
Fax - 406-444-1523

VOCATIONAL ENROLLMENT TRENDS IN MONTANA 1983 TO 1990

Compiled By
Pam Parsons

Under Contractual Agreement with
Montana Council on Vocational Education
Jim Fitzpatrick, Executive Director
September, 1990

VOCATIONAL EDUCATION TRENDS IN MONTANA
Study of Enrollments - 1989 - 1990

This study was conducted by Pam Parsons, former vocational educator, Cascade High School, under contractual agreement with the Montana Council on Vocational Education. In addition to the research Pam conducted, the Council contracted with Tamra Hoyem, a graduate student at Montana State University, and former vocational educator. This contract involved a survey of secondary vocational educators to determine secondary vocatiom\education enrollments; reasons for enrollment increases or decreases; elimination of programs; and other relevant information. The results of Tamra's study are included in this report.

The Council commends these individuals for their dedication, commitment, and professionalism. The Council is hopeful the results of this study will be of value to boards of trustees, school administrators, and secondary and postsecondary educators in their efforts to maintain, enhance, and improve vocational education offerings and delivery systems for all students.

September 1991

TABLE OF CONTENTS

Page

I. INTRODUCTION 2

II. INFLUENCES 2
- A. National Job Trends 2
- B. Vocational Alliance with Business & Industry 4
- C. Vocational Maturity & Student Occupational Interest 5
- D. Articulation 7

III. STATISTICS 9
- A. Secondary Vocational Enrollment 9
  - 1. Validity 9
  - 2. Additional Enrollment Samples 11
- B. PostSecondary Enrollment 15
- C. Vocational Club Memberships 17

IV. SUMMARY & RECOMMENDATIONS 18
- A. Conclusion 23

V. APPENDIX 24
- A. Table 1: Enrollment - MT Vo-Tech System 24
- B. Table 2: Most Wanted List, Jobs in the 90's 25
- C. References 26

I. INTRODUCTION

Enrollment in vocational courses at both the secondary and postsecondary levels are declining in Montana and nationwide. There are many reasons for this at the secondary level, including increases in high school graduation and college entrance requirements and a decline in the number of high school-aged students. At the postsecondary level, it is likely that the deficit of students enrolled in secondary vocational education is reflected in lower enrollment in vo-tech centers.

It is clear that student participation in secondary vocational education has been affected by educational reforms, however, this does not necessarily mean the demise of secondary vocational education. In states where vocational leaders and administrators have encouraged change in program structure and delivery, vocational education has managed to sustain and even improve student participation.(24)

Vocational educators in Montana and nationwide are becoming aware of the importance of the following trends which influence their programs: national job trends, vocational alliances with business and industry, vocational maturity and occupational interests of students and articulation between secondary and postsecondary institutions.

II. INFLUENCES

A. NATIONAL JOB TRENDS

While experts disagree on the rate and extent of oncoming changes in the national job market, we can expect the following:
-Continual change in the economy;
-International competition causing profound, continuing changes in the nature of work and the skills required to do it;
-The rapid application of technologies, driven by international competition, will continue to have uncertain but significant effects on the skills required for working;
-Our nation will remain competitive in the world economy only through increased productivity resulting from a highly trained and adaptable workforce;
-Since technology is universally and instantaneously transportable across national boundaries, the retention of our technological advantages is no longer assured;
-Fewer jobs will be available in manufacturing, and those jobs will require greater technical skills than manufacturing jobs required in the past; and
-The greatest growth in jobs will be in the service sector, and those jobs will require greater technical skill than previously needed.(22)

Not only do students need more and different job skills, but they also need better skills. Educators are being asked to equip future workers with a new, more powerful set of tools, one that includes greater proficiency in basic skills - reading, writing, and mathematics - and also develops workplace literacy, the ability to apply basic skills to job-relevant information.(22)

General Motors, for example, once considered manufacturing skills and academic skills as unrelated, but is now administering a workplace literacy program of international dimensions. GM is also exploring ways to stiffen hiring criteria to ensure that new employees have a better education than they did ten years ago. At GM as elsewhere, Americans without basic skills face bleak job prospects.(22)

A new study by the Labor Department found that hundreds of thousands of jobs, once performed perfectly well by holders of high school diplomas, now are being reserved for college graduates. Employers say that, at least, with a college graduate, they have a reasonable chance of hiring someone who can read, add, and complete an assigned task. This means employers pay higher wages for college graduates even though consumers get no added value. In other words, we get inflation.(8)

Administrators at both the secondary and post-secondary levels are very important to the success of their vocational programs. We must assume that administrators are interested in both quality and equity and they are concerned about the future of both the college-bound and the employment-bound youth.(27) In addition, teachers, counselors and employers have to recognize two important facts:
(1) Not every teenager is interested in or can afford to go to college.
(2) Every teenager deserves an opportunity to get the training necessary to become productive, self-respecting and useful.(8)

Even though most academically talented students plan to pursue formal postsecondary education, vocational courses can develop their ability to apply concepts and principles and solve practical problems. This outcome of education is one valued by all of society. The laboratory-style learning environments in high-quality vocational education also emphasize individual and group processes that develop self-reliance and teamwork.(5)

The report, "With Consequences for All", published by the Association for Supervision and Curriculum Development, reasoned that if increased emphasis on core subjects causes vocational programs to be scaled down or eliminated, the effects will be most negative for the roughly 24 percent of students who are "likely to enter the workforce immediately upon graduation".(5)

Other casualties of fewer vocational education electives are the at-risk students who have one or more physical, mental, economic, or social disabilities. Vocational education, which integrates basic skills with job skills development in a meaningful way, is often the deciding factor that motivates disadvantaged students to stay in school. (5)

There are several obstacles that prevent academically gifted and talented students from receiving the benefits of vocational programming. First, there is ample evidence to indicate that both the parents and the educators of students with outstanding abilities direct and counsel them into baccalaureate programs after completion of high school. The alternative of choosing a life-satisfying career through vocational education has been denied.(2) Career education programs need to be developed or modified in such a way that vocational education is presented as an appropriate option. Then, an effort should be made to make vocational teachers perceive their discipline as being involved with the gifted and talented. Vocationally talented students are a group of high ability students whom educators tend to overlook.

These talented students are found in vocational education courses and teachers need to recognize that talent in areas outside of the academic areas may be just as important to society as talent in academic areas.(2)

The most difficult problems for teachers in meeting the needs of academically and/or vocationally talented students have been found to be: providing sufficient challenge through instruction, maintaining motivation and spending sufficient time with talented students. The most serious problem for students was the difficulty in scheduling both academic and vocational classes. Secondary problems were boredom, lack of challenge, maintaining self-motivation and frustration with unrealistic expectations. Among the services that vocationally talented students should have are: specially trained teachers; faster pacing; flexible progression (the opportunity to take advanced courses); access to supplementary materials and equipment on advanced levels; in-depth, independent study; open access to the library; opportunities to interact intellectually and effectively with others who have common abilities and interests; and, use of community resources for outside visits and speakers.(2)

Academically talented students who are interested in and/or have an aptitude for vocational education need to be given the option of enrolling in vocational courses and programs. Some of them may wish only to explore these areas, whereas others may view vocational education as preparation for an occupation or career. Not all academically talented students want to go on to college. A study related to high school dropouts with IQs of at least 120 recommended that we need to become concerned about the bright adolescent with non-professional aspirations. What most of the dropouts wanted of the school was 'practical' courses which would assist them in 'living in the real world'. This situation will continue as long as we view vocational education as programming designed only for someone else's children and promote the idea that the only good education is one capped by 4 years of college. (National Advisory Council on Vocational Education, 1969).(2)

One of the goals claimed for comprehensive high schools has been seriously neglected during the last decade. Half the youth in our high schools have been cheated because our public schools have been preoccupied with the needs of college-bound students. These neglected youth include dropouts, pushouts, cast-offs, and other casualties. They also include those who stayed in school long enough to graduate, but were prepared for neither college nor employment.(27)

B. VOCATIONAL ALLIANCE WITH BUSINESS & INDUSTRY

More than any other factor, the success of vocational education has depended on support and cooperation from labor and business. The demand for skilled, semiskilled and general labor is highly controlled by labor-business contractual agreements. Unfortunately, these agreements often preclude the use of vocational education.(3)

Being a vocational education graduate may be of little value when seeking employment with some major companies, whether applying as a skilled technician or an assembly-line worker. Such employers do not require previous vocational training, and those individuals with strong high school academic credentials have an equal and sometimes greater chance of employment

than do vocational education graduates. The better paying and more prestigious occupations, both skilled and general labor, are not often entered through the route of vocational education.(3)

Are Montana businesses and labor organizations aware of the value of secondary and postsecondary vocational education in producing capable employees? Are they intimately involved with curriculum development? Are their needs met? The answers to these questions will require an open-minded approach and a willingness to converse with Montana employers and labor organizations.

Vocational educators, counselors and administrators should be first and foremost, student advocates. We should ask ourselves, how will vocational education benefit the student? For example: Does a 2-year program in carpentry lead to entry into the local carpenter's apprenticeship program? Does vocational education mean an advantage over other graduates in admission to the skilled trades or to general employment? What are the advantages as well as the disadvantages of pursuing an academic, rather than a vocational, education for students who are not college bound?(3)

Administrators and educators, alike, must allocate a substantial portion of their time to develop their constituencies in the community. If the school is to serve employment-bound youth, one of the most important groups of constituents would be employers in business and industry.(27)

The tragedy of displaced workers in the 1980's illustrates the need for adaptability. Switching to new career paths may turn out to be the most important accommodation that workers will need to make in a rapidly changing economy. It has become increasingly obvious to many educators that the most useful vocational skills include the very basic capacities to read quickly, comprehend easily, write clearly, and calculate accurately. Perhaps, as was true in earlier times, an excellent general education is the best insurance for survival in a time of rapid change.(7)

C. VOCATIONAL MATURITY AND STUDENT OCCUPATIONAL INTEREST

The vocational maturity of high school students is a problem inherent to declining enrollments in vocational education classes that was not adequately addressed in "The Unfinished Agenda", a report of the National Commission on Secondary Vocational Education.(3)

The concept of vocational maturity was first developed by Donald Super in the 1940's in early research on vocational development. His 10-year longitudinal study of ninth grade boys, illustrates the difficulty of career decisions for adolescents and young adults. Super discovered that high school students had not yet reached that developmental stage at which they could realistically begin the process of career planning. Erikson labeled the adolescent stage as one of 'identity crisis', when it is absolutely necessary to allow time and energy to be devoted to role and image experimentation. More recently, Salamone identified the problem of vocational indecision as part of the natural growth process; a process that may last into the mid-20s for many individuals. (3)

The troublesome nature of the vocational maturity question was recognized early by vocational educators and counselors. Students age 15 and 16 are being asked to make two important life decisions: first, whether to forego, in part, the academic or comprehensive curriculum for skills training that would presumably result in a job upon graduation; second, to choose a particular career and commit themselves, in most cases, to 2 years of skills education. (3)

Many high school students do not have a realistic understanding of today's job market or of the skills needed for specific occupations. In the spring of 1990, a School To Work Transition Project (STOW) Student Interest Survey was administered to high school students in Great Falls, Montana. It is intended to provide counselors and advisors with current information about student interests.

In her analysis of the responses to the survey, STOW Counselor, Donna Berkhof of Great Falls Public Schools, found that as students enter the higher grades, there is a noticeable decline in the number of students who intend to go to college or university.(1) 65.8% of freshmen versus 58.9% of seniors surveyed planned to attend college or university. Enrolling in Vo-Tech schools fell behind entering the armed forces and entering the workforce as immediate choices following high school graduation.

According to high school enrollment statistics and university entrance counts, in 1990, 41% of Montana's high school seniors entered the university system.

The following, in descending order, were chosen by students in the Great Falls survey as occupations they would most like to pursue: Armed Forces Enlistee or Officer, Lawyer or Judge, Professional Athlete, Law Enforcement Officer, Psychologist, Musician.

In examining this list, ask yourself the following questions:
1. Do ample job opportunities exist in Montana in these areas?
2. What type of training is required for a career in each of these fields? Is a four-year college degree required? A master or doctorate degree? Vo-tech school? On-the-job training?
3. Is individualized, on-going, occupational counseling needed in Montana Schools?

According to the Montana Education Commission for the 90s and Beyond, as Montana's economy becomes more diversified, it depends less on traditional extraction industries and more on service and entrepreneurship. Growth in service industries stimulated the presence of 26,000 more jobs in 1987 than in 1979, more than offsetting losses in the other sectors during this period. The educational implications of these changes are becoming increasingly apparent in Montana today.

Presently the nine largest service industries in Montana listed in descending order are retail trade, education, health care, general government, finance, insurance, real estate, food service, wholesale trade, transportation and public utilities. All are heavily reliant on skilled people, so much that many consider the work force the critical determinant of the rate of growth of the economy and the well-being of the population.(17) The US Bureau of Labor Statistics has provided a list of twenty occupations that will grow in demand most quickly nationwide in the 1990's - see Table 2.

Interestingly, there is little similarity between occupations chosen by high school students to the list of industries anticipated to have a high employment growth rate in Montana.

As Joe Roberts, Assistant Supt. for Missoula County High Schools, stated in his testimony, at the MCVE Public Hearing, in Missoula, "Students graduating from high school will now be well rounded with a foreign language, three years of science and three years of math. However, somewhere along the way, young people will have to make decisions on what they want to do in the world. Special education students are more acclimated to the community, going their own way and making their own living than the student on the next level. We aren't giving them the opportunity - they are floundering. We need to help the students find out who they are, give them opportunities for career exploration and get them excited about something they want to do."(16)

What changes are necessary to help students leave high school with realistic expectations of their place in the world of work and the skills to accomplish their goals?

Although all youth need skills that are now confined to vocational programs, fewer students are able to participate in vocational education as it is currently structured.(22) The commission on the Skills of the American Workforce has found that teens who are uninterested in college or unable to afford it are receiving only the most haphazard career advice and training.(8)

Meanwhile, other countries are pouring enormous amounts of effort into developing skilled high school graduates. For example, German youth who don't plan to go on to college can become apprentices in any one of 380 occupations at age 15 or 16. For the next couple of years, three-quarters of their time is spent getting on-the-job training while the rest is spent in the classroom.(8)

D. ARTICULATION

Articulation has been defined as a "planned process linking two or more educational systems within a community to help students make a smooth transition from one level of instruction to another without experiencing delay or loss of credit." (Bushnell, 1978) (15)

Among the goals listed in the current Montana State Plan for Vocational Education are those specifically related to articulation, indicating that in secondary schools competency measures will be specified for all occupational programs, and that competency testing for secondary vocational education completers will be initiated. The Plan also includes a directive for the development of coordinated agreements between secondary and postsecondary institutions to provide for the forward progress of students, and to also establish procedures to facilitate transfer of credits for technical and vocational courses between two- and four-year institutions. (From Time to Commence - Articulation in Vocational Technical Education in Montana published by The Center for Vocational Education, Northern Montana College) (15).

In a public hearing held by the Montana Council on Vocational Education in October 1989, participants stated that curriculum articulation does exist in Montana's secondary schools. The Board of Regents has a policy in place for transfer of credits between the six university units and community colleges. However, articulation agreements are limited.(15)

Barriers to implementing articulation in Montana schools are: communication, turf battles, funding, lack of competency identification and differences in course content. It is important that vocational educators and administrators be, first of all, student advocates. Priority should be given to students' needs as demonstrated in this statement by Wayne Gilman, Beaverhead County High School, "There is no good reason in my mind to hold a student at any level if they have the competencies to move ahead..."(15)

Standards must be set, educators re-educated and competencies established. Margaret Briggs of Montana State University states that "...there is need for much preliminary work at strengthening courses, strengthening faculty credentials, and review of course content and rigor by faculty groups representing all the campuses across the state before it is feasible to seriously consider such action...it is imperative that the process of review be initiated immediately." (15) If vocational leaders in Montana are committed to implementing this process, there is work to be done.

Vocational education is thriving in Council Bluffs, Iowa, where vocational enrollments are up 32 percent since 1987. This is a result of a commitment to develop a fully articulated career education program that would interest a broad range of students in grades 9 through 12 and beyond, and facilitate their transition into postsecondary education.(4)

A contract between the Council Bluffs Community School District and Iowa Western Community College (IWCC) to provide preparatory vocational programs was negotiated to represent a fair contribution by each institution. College credit is awarded on completion of high school courses that correspond to IWCC courses. In each program where this is possible, secondary and postsecondary teachers have jointly agreed on the competencies to be developed. Some funding is provided through the school district, which takes full advantage of any public and private financial support that is available. Students pay for books and other fees related to courses receiving postsecondary credit.(4)

Some of the preparatory courses, including health careers and principles of technology, are especially appealing to college-bound students because they offer science credits as well as vocational credits. Other courses, such as computer-aided drafting and computer business applications provide basics in professional areas.(4)

Vocational students learn to understand academic principles through application - in math, science and communication. Every vocational program develops higher-level thinking skills through problem solving. Programs also develop personal skills that students will need to succeed in the workplace. These include human relations skills, good work habits, following directions, and contributing effectively to an organization and a work team.(4)

There is a lack of articulation between high school vocational and postsecondary programs nationwide. High school programs should be structured so that they provide a smooth transition for those students who want to go on to technical schools or college. By teaching basic content and skills and appropriate career attitudes and values, as well as higher order cognitive skills, such as problem solving and decision making, vocational programs can provide appropriately challenging and satisfying experiences for all types of talented students.(2)

It is evident that such a process benefits students, parents, taxpayers, employees, as well as the "sending" and "receiving" institutions. Each step of this planned process culminates in a set of validated competencies that are recognized as legitimate by employers or "receiving" institutions. Costs of time and dollars are reduced, learners are treated with respect for what they have already learned, and duplication of coursework is avoided.(15)

III. STATISTICS

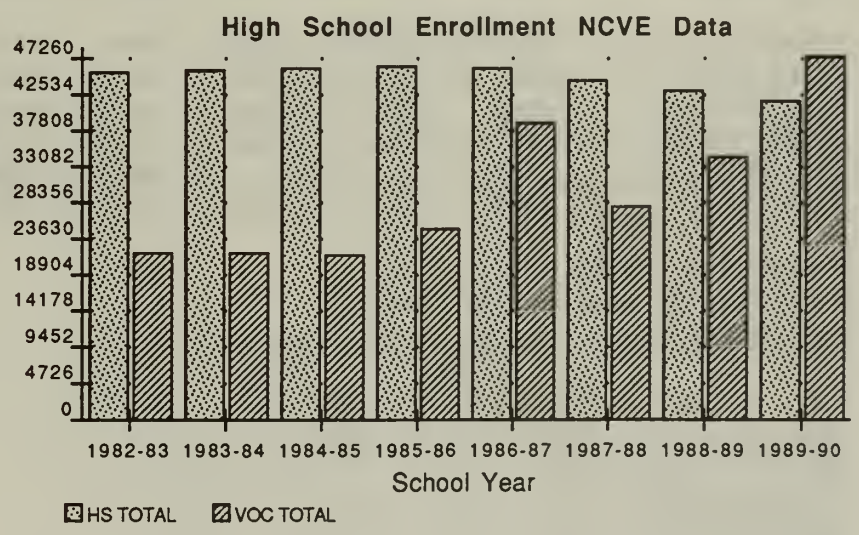
A. SECONDARY VOCATIONAL ENROLLMENT IN MONTANA

Montana's vocational educators have become increasingly concerned over the past decade as increased graduation requirements and other school reforms have begun to reduce student access to their classes.

Although some states report very large enrollment increases in vocational classes over the last 6 years, the figures probably reflect changes in the way enrollment data are collected. Since the reform movement instigated by "A Nation at Risk" began in earnest in 1983, vocational enrollments have not kept pace with increases in the high school student population or have fallen faster than a dwindling number of high school students. (5)

During the period 1982 to 1990, enrollments in Montana's vocational classes show an overall increase according to data published by the National Center for Research in Vocational Education. See Graph #1.

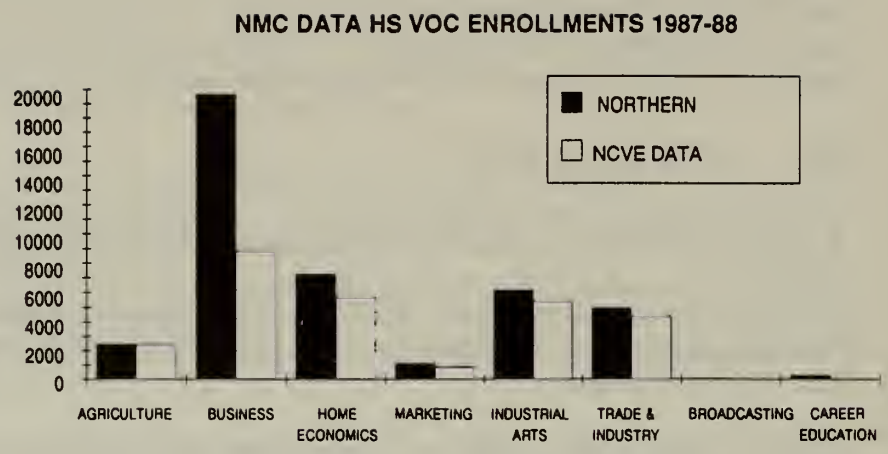
Graph #1:
High school total enrollment compared with that in vocational classes for the years 1982 to 1989. Note that the vocational total is larger than the high school total for 1989 due to duplicate counts and the inclusion of middle school enrollment.



1. VALIDITY

There is a discrepancy between secondary enrollment figures carefully compiled by Northern Montana College (11) for 1987-88 and those reported by the NCVE. Graph #2 illustrates the difference between the two. Both sets of data were compiled from fall reports collected by the Montana Office of Public Instruction.

Graph #2:
A comparison of data published by the National Center for Research in Vocational Education, Center for Vo-ED, Northern Montana College. Note that the trends are the same although the specific figures are not.



NCRVE (National Center for Research in Vocational Education)
Enrollment figures for Montana High Schools:

	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90
HS TOTAL	*45089*	*45378*	*45616*	*45951*	*45755*	*44177*	*42747*	*41421*
VOC TOTAL	*21440*	*21535*	*21395*	*24604*	*38483*	*27539*	*34170*	*47257*
AGRIC.	3394	3236	3119	3052	3443	2398	2817	3419
BUSINESS	5282	5904	5583	6135	13871	8791	12456	15051
HOME ECON.	8068	7835	8228	7508	8533	5667	7320	12473
MARKETING	1007	1052	1057	1027	1553	860	1575	1308
IND. ARTS				3605	6409	5419	5726	9933
T & I	3689	3508	3408	3277	4674	4404	4276	5073

Center For Vo-ED,
NMC (Northern Montana College)
Enrollment figures for Montana High Schools:

	1987-88
TOTAL VOCATIONAL	*41746*
AGRICULTURE	2453
BUSINESS	19625
HOME ECONOMICS	7211
MARKETING	1115
INDUSTRIAL ARTS	6130
TRADE & INDUSTRY	4913
BROADCASTING	30
CAREER EDUCATION	269

There are several factors that adversely affect the validity of the vocational enrollment data available from the fall reports from 1986 to 1990:

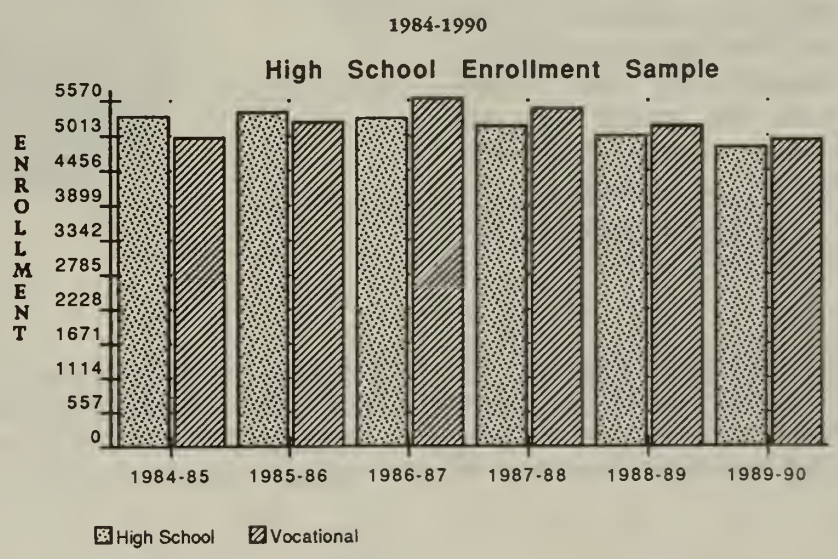
a) Beginning in 1986-87, fall vocational enrollment reports include 7th & 8th grades. Prior to that year only high school students were counted.
b) Fall reports are required for vocationally funded programs but are not received from other vocational programs, some of which are not taught by vocationally certified teachers. In 1987-88, no state funding was available for secondary vocational programs and only a small number of schools reported. This shows up as a significant drop in enrollment in 1987. In 1988-89 the state money was again available, more schools reported enrollment data and the enrollment figures jumped.(20)
c) Fall reports are not consistent in the area of 'duplicate counts'. Students are counted more than once if they were enrolled in more than one vocational class or if they are in a class consisting of a 2-hour block but schools differ in their methods of reporting enrollment.(11)
d) A wide range of course titles exist for similar courses - it is difficult to group them properly into programs when compiling enrollment statistics for each vocational area.(11)

Hopefully, collection and reporting of vocational enrollment data will become more consistent in the future. However, in order to give a valid indication of vocational enrollment trends in Montana for this report, additional resources have been used.

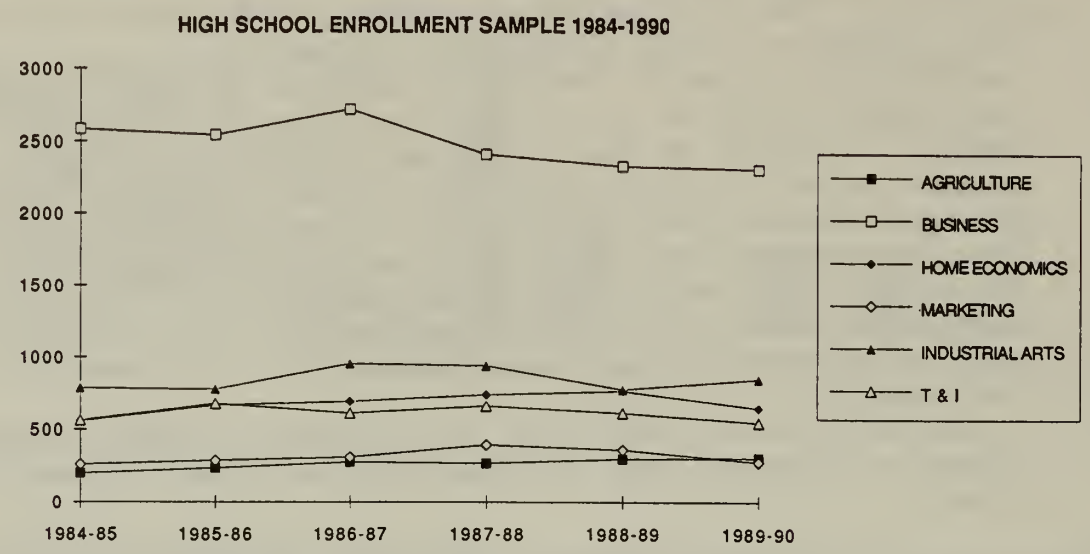
2. *ADDITIONAL ENROLLMENT SAMPLES*

In September, 1990, twenty schools varying in size and geographic location were contacted for vocational enrollment information in each program area for the last 6 years. Eight schools responded and the results of this survey are shown in Graph #3. Based on these figures, total vocational enrollment shows an increase from 1984 to 1986 and then begins to decline. 1989-90 enrollment is the lowest. Total school enrollment in the sample schools decreased steadily over the years reported with its lowest point also being in 1990.(23)

Graph #3:
The vocational enrollment shown on this graph includes duplicate counts of students who are either in more than one vocational class or in a class lasting more than one hour.

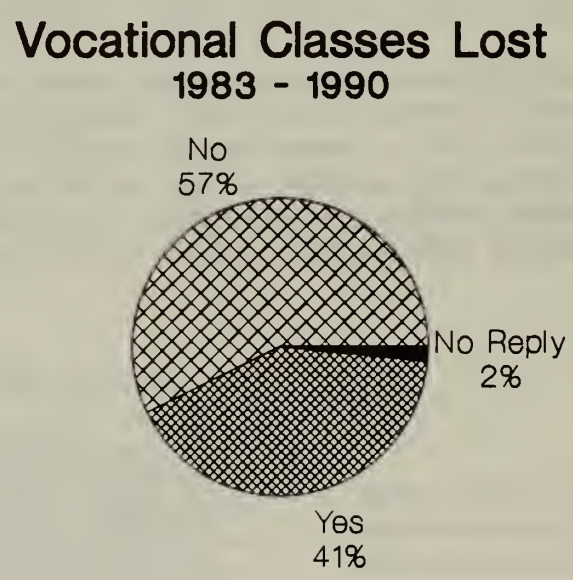


Graph #4:
The overall enrollment in vocational areas according to this sample, has decreased over the past 6 years. Industrial Arts/Trade and Industry enrollment increased between 1988 and 1989.



This data concurs with that found in Tamra Hoyem's report on Vocational Education Enrollment in Montana. Of the educators she surveyed, 64.5% felt that there had been a decrease in both vocational and total school enrollment within the period 1983 to 1990.(9)

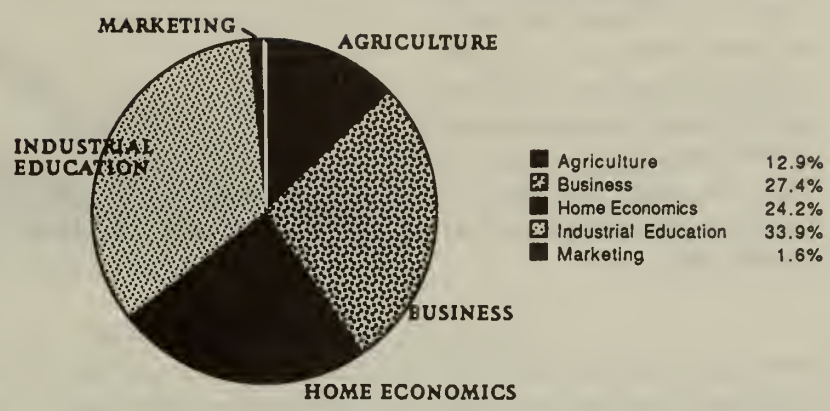
Graph #5:
Ms. Hoyem reported that 58% of the respondents to her survey had not lost vocational classes from their school curriculum. However a significant 42% reported that some vocational classes have been lost. Of those lost, there did not seem to be a general trend of which program areas lost classes from the curriculum (see Graphs #7 and 8). She was able to identify the years 1987-89 as the years that most losses were experienced.



Only 8% of the respondents to Hoyem's survey reported that a vocational program had been dropped from the curriculum while 23% reported that non-vocational programs, mainly art and music, had been dropped. She notes that there are more non-vocational programs overall than vocational programs so just looking at the percentages may not project a true picture.

Graph #6:
30% of Hoyem's respondents reported that the number of vocational educators had been reduced in their schools. Most reductions occurred from 1986-89. 36% reported reduction in force of non-vocational educators. However, as she reports, there are more non-vocational educators employed by school districts.(9)

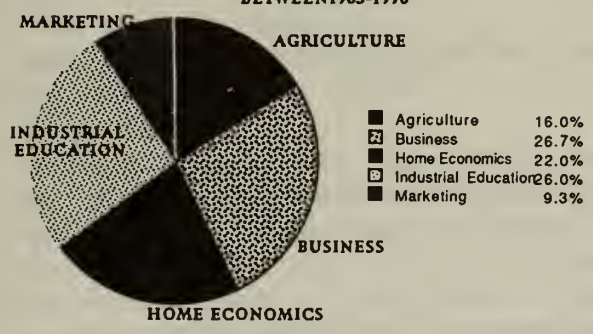
Reduction in Force by Vocational Area
Between 1983 and 1990



Educators responding to Ms. Hoyem's survey reported that there were both enrollment decreases and classes lost from vocational areas. Graphs #7 and #8 illustrate these areas.

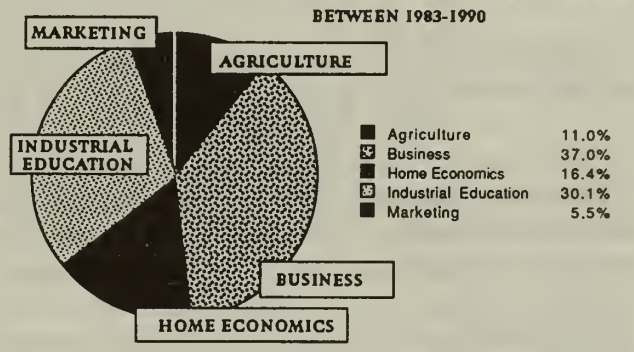
Graph #7

Enrollment Decrease by Area
BETWEEN1983-1990

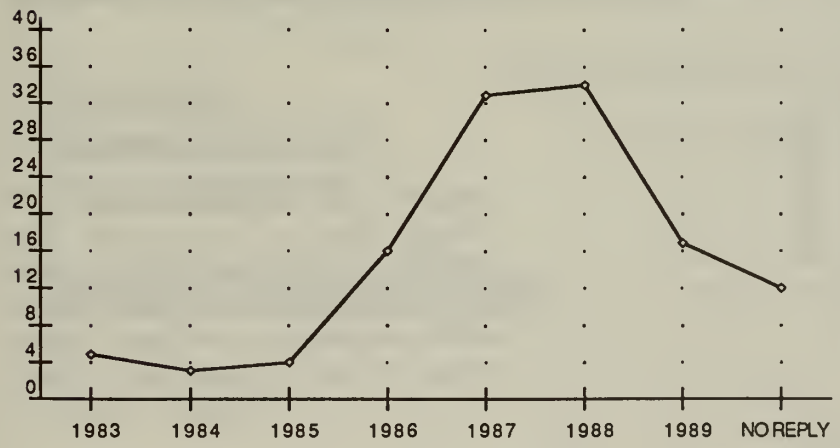


Graph #8

Vocational Areas Losing Classes
BETWEEN 1983-1990

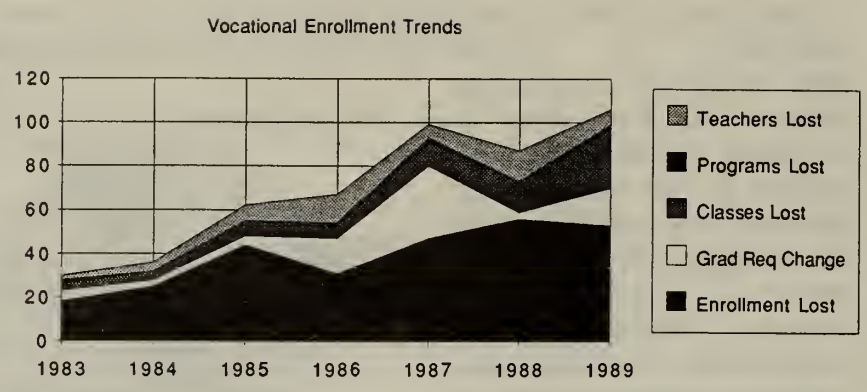


YEAR STATE-MANDATED GRADUATION REQUIREMENTS ADOPTED



Graph #9:
State-mandated graduation requirements have now been adopted by Montana high schools. As evidenced from the graph, the majority of the schools surveyed adopted them in 1987-88.

Graph #10:
According to Ms. Hoyem, enrollment decreases were common in the past four years. Most schools adopted graduation requirement changes in 1987. The most vocational classes were lost in 1989 and programs lost in 1987. The highest reduction in the vocational teaching force took place in 1988.



Increased requirements for entering Montana colleges have had a drastic effect on the enrollment in vocational classes. In his testimony before the MCVE Public Hearing on March 9, 1990, Joe Roberts, Assistant Supertintendent, Missoula County High School related the following information on vocational enrollment in Missoula high schools:(16)

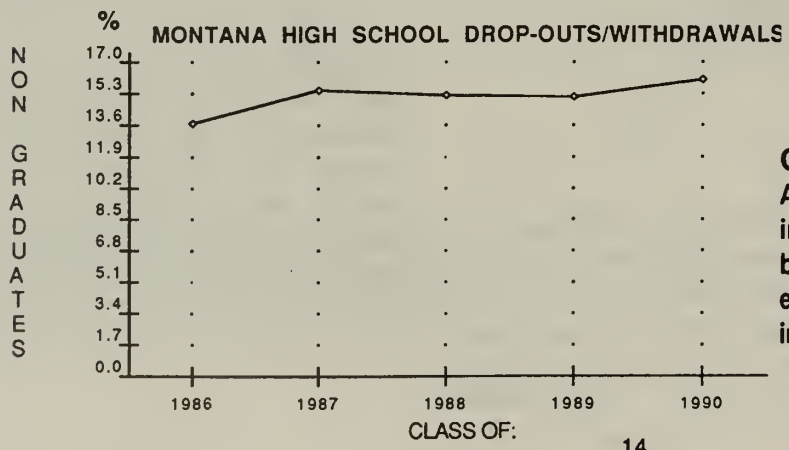
-In 1984-85, the Business department had 92 classes. Beginning in the fall of 1990, it had 54 1/2 classes. That means 7 1/2 business teachers were lost.

-In 1984-85, the Home Economics department had 46 sections, now there are 29. That is a difference of 17, or 3 and 2/5 teachers.

-Industrial Arts started out six years ago with 60 sections. There were 34.5 in 1990, for a loss of 25.5 sections.

-There was an extensive Forestry program in place 6 years ago - two full time teachers. There were also two teachers in Vo-Ag. Both of those programs are now cut in half. It has been hard keeping students in Forestry and Vo-Ag. You can see just in a short period of time what a change these requirements have made.(16)

In addition to problems in strengthening vocational programs in Montana schools, we are seeing an increase in high school dropout and withdrawal rates. The Montana high school graduating class of 1986 had a 13.7% dropout rate. This increased to 16.1% for the class of 1990.(21)



Graph #11:
Although there is no proof that this increase in dropouts was directly caused by increased graduation and college entrance requirements, the timing of the increase invites this conclusion.

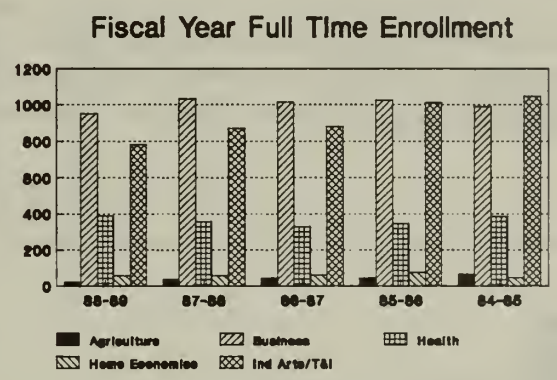
To aggravate the dropout problem by eliminating vocational education options will have a profound effect on Montana's and the nation's economic and social well-being. Major corporations are finding that they are unable to employ well-qualified high school graduates and are providing costly remedial basic skills training before new employees can be productive.(5)

Nationwide, states experiencing drops in vocational enrollment are those that show increased accreditation standards, graduation requirements and postsecondary entrance requirements as well as a lack of coordination between secondary and postsecondary institutions. The image of vocational education in those states is primarily for handicapped and/or disadvantaged. Decline in high school population and/or state's economy obviously effects negative vocational enrollment as well.(24)

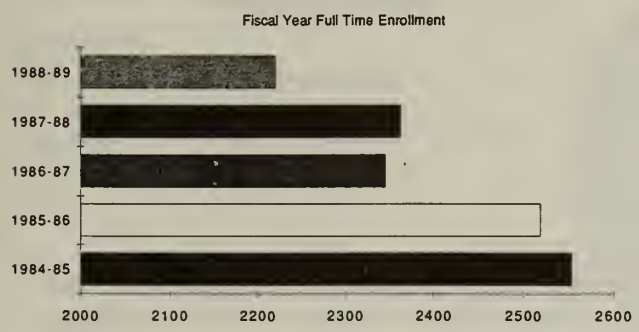
B. POST-SECONDARY ENROLLMENT IN MONTANA

Enrollment in Montana's public vocational technical centers has shown a decrease over the past 6 years. Data was compiled from reports submitted by each center to the Office of Public Instruction and to the Office of the Commissioner of Higher Education, State of Montana.

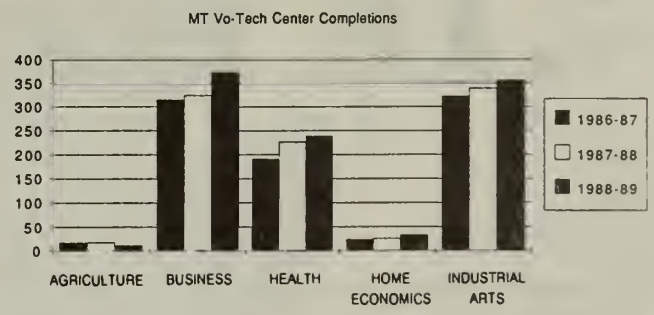
Graph #12:
Total enrollment in Montana's vo-tech centers has decreased between the 1984-85 and 1988-89 school years.



In examining the postsecondary enrollment further, it is interesting to note that although enrollment has dropped, completions, overall, have shown a slight increase. Graphs #13 and 14 illustrate enrollment and completions broken into general program areas. Table 1 contains enrollment statistics and a more detailed list of program titles that were consolidated to graph the postsecondary enrollment trends.

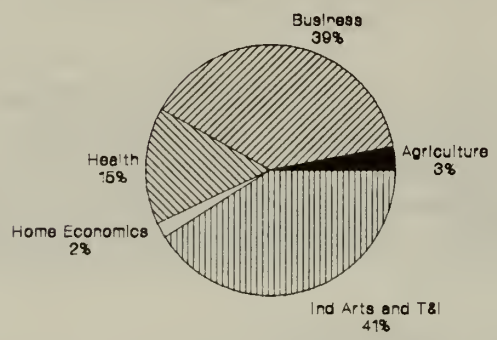


Graph #13
Enrollment: 1984-1989

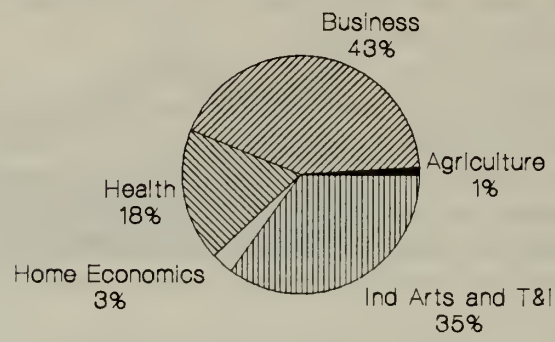


Graph # 14
Completions: 1986-89

Fiscal Year Full Time Enrollment
Montana Vo-Tech System 1984-1985



Fiscal Year Full Time Enrollment
Montana Vo-Tech System 1988-1989



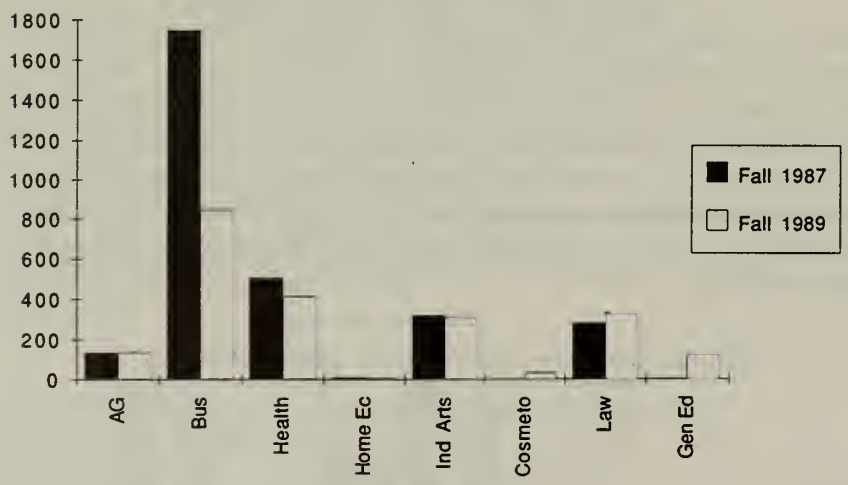
VO-TECH ENROLLMENT

Graph #15: 1984-85 **Graph #16: 1988-89**

The ratio of students in each area to total vo-tech enrollment has changed little over the period studied.

Enrollment in vocational classes in other postsecondary institutions has also decreased. The following is based on fall enrollment reports from 1987 and 1989. It includes tribal colleges, community colleges, specialized schools such as beauty schools and hospitals as well as Eastern Montana College, Western Montana College and Northern Montana College.

Post Secondary Enrollment - University, Tribal & Community Colleges

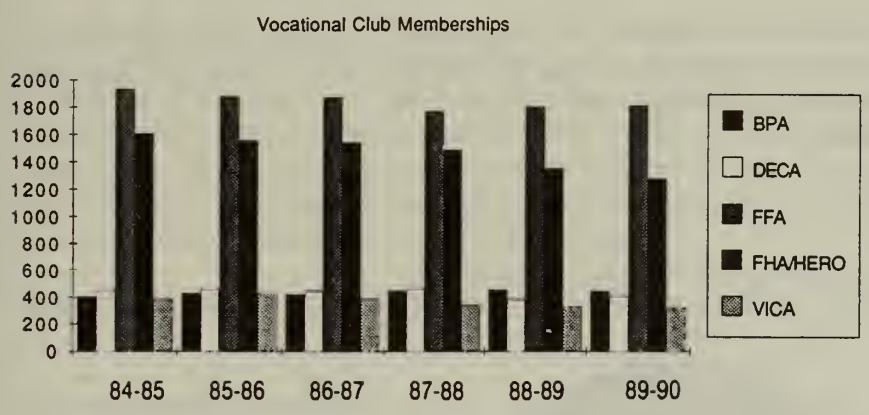


Graph #17:
Decreases are being experienced in most postsecondary vocational areas. The area designated as "Law" is training for law enforcement officers and has shown an increase.

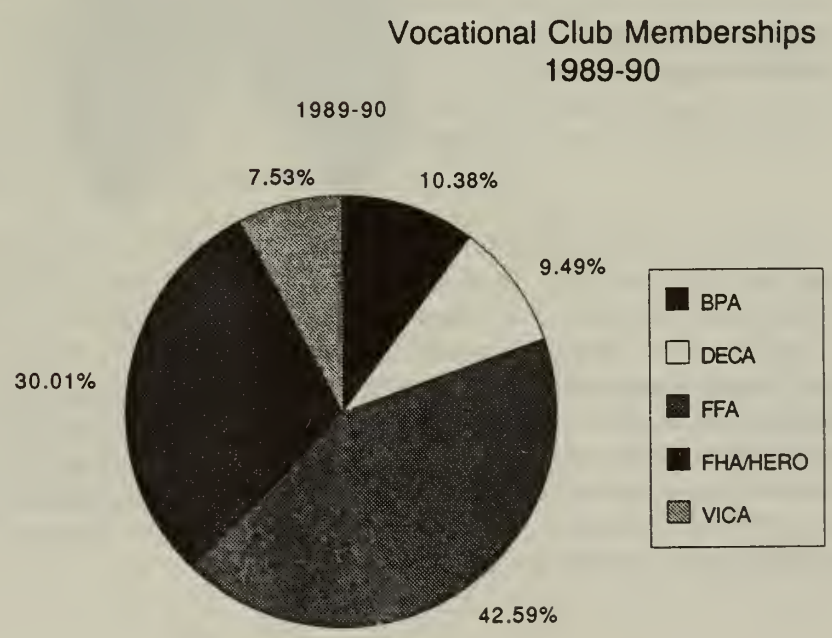
Decreases in secondary vocational programs are affecting vocational enrollments at the postsecondary level. Ideally, a high percentage of high school students who are taking vocational classes should be 'fed' into postsecondary vocational programs to receive more advanced training.

C. *VOCATIONAL CLUB MEMBERSHIPS*

Student membership in vocational organizations is a positive, motivating leadership opportunity for students. Montana has a history of involvement with vocational student organizations. Membership is available to some junior high and postsecondary students and nearly all high school students in Montana schools. The following are the vocational student organizations available to Montana's youth: Business Professionals Association (BPA), Distributive Education Clubs of America (DECA), National Association of FFA, Future Homemakers of America (FHA/HERO) and the Vocational Industrial Clubs of America (VICA). Leadership training and educational competition are vital components of each organization. Unfortunately, membership in these clubs has declined over the past seven years parallelling the decline in total school and vocational class enrollment as shown below.



Graph #18:
Trend in vocational club membership from 1984 to 1990.



Graph #19:
FFA has the largest membership of the vocational clubs in Montana.

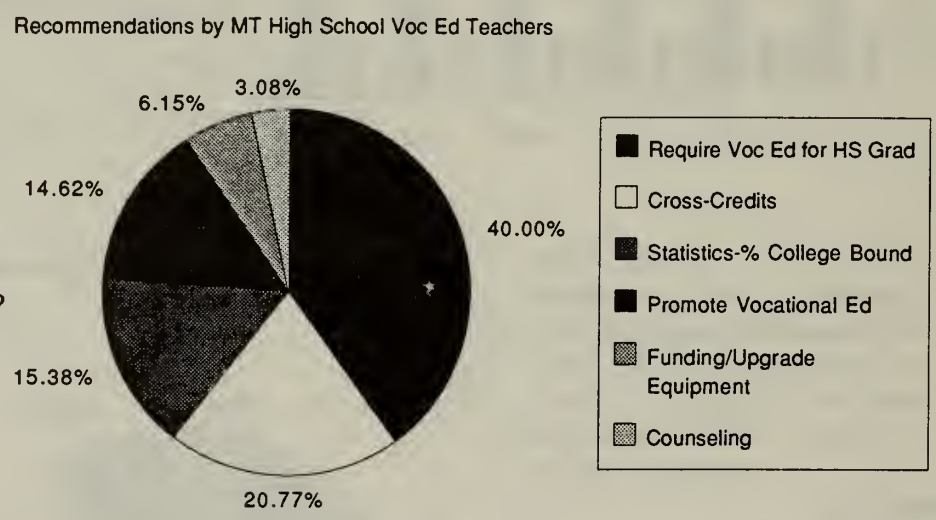
IV. SUMMARY/RECOMMENDATIONS

Tamra Hoyem's survey as well as other sources, show that enrollment in vocational classes at the high school level is decreasing more than total high school enrollment. Postsecondary enrollments are down and both levels are experiencing cuts in classes and programs.

In her study, Ms. Hoyem asked vocational educators, "What needs to be done to make vocational education a more integral part of the high school curriculum in Montana public schools?"(9) Graph #20 illustrates the frequency of the following responses:

1. Vocational education should be required for graduation and college entrance or graduation requirements lowered.
2. The use of cross-credits, allowing Business Math to count as a Math class or Vo-Ag classes counting as a science class should be allowed.
3. The emphasis of how many students actually go to college or need a college degree should be brought out.
4. Promotion of vocational departments needs to be improved. Initiate promotional and marketing prospects to achieve a greater awareness of vocational and technical education.
5. Additional funding and upgrading of equipment.
6. Need for vocational counselors.

Graph #20:
What needs to be done?



Publications and interviews from Montana and other states focus on the need for changes in the structure of secondary and postsecondary vocational education in Montana. We are approaching the end of the 20th century - it is time to brainstorm, explore options and reach a consensus of our expectations of 21st century vocational education. The following are recommendations for increasing vocational enrollments in Montana secondary and postsecondary institutions.

RECOMMENDATION #1: EDUCATIONAL ASSOCIATES ... VOCATIONAL EDUCATION, BUSINESS AND LABOR

Montana vocational educators need leadership in establishing ties to business and labor. Support and education in establishing these ties could be supplied by any or all of the individuals and/or groups that are currently involved in Montana education. Educators must be willing to use all research data available to them. Job market projections from the U.S. Department of Labor and Job Service should be reviewed periodically. Surveys of businesses will produce data about the latest equipment, job skills and projected changes in the field. Current journal articles shed light on general trends in vocational education as well as those specific to various occupational fields.(4) Information could be channeled to educators by newsletter, telecommunications or periodic mailings through the following: Office of the Commission of Higher Education, the Office of Public Instruction, Montana Vocational Association, Montana Council on Vocational Education, or any of a number of other established organizations.

Vocational education must adapt to the changing demands of society in general, and education in particular. Courses must not only prepare students with entry-level skills, but be academically rigorous and deal effectively with the concerns of employers. By developing programs for a wide spectrum of students, programs that provide problem-solving skills and a pathway for further training, vocational education can take its rightful place as an integral and valuable part of every high school student's education, and for those individuals pursuing postsecondary vocational-technical education.(4)

RECOMMENDATION #2: INTEGRATING VOCATIONAL AND ACADEMIC CURRICULAR EFFORTS

In the September 1990 issue of 'CenterWork', Gerald Hayward, Deputy Director of the National Center for Research in Vocational Education reports that two of the most significant provisions in the new Vocational Education reauthorization act are: Integration of Academic and Vocational Education and Tech Prep.(19) Academic and vocational education must go hand in hand. The real key to change is recognizing that vocational education programs must become interdisciplinary in nature. Vocational education teachers need to team up with teachers in traditional academic areas - demonstrating to students that what they study in physics, for example, applies to technological education.

The number one reason students give for not enrolling in vocational education, according to an Ohio State University survey, is that they cannot schedule both vocational and college courses. The college preparatory student could be encouraged to enroll in vocational education courses for enrichment, exploratory or investigative purposes. Entry into colleges, universities and technical schools could be accelerated as a result of articulation agreements with vocational programs. Vocational education should not only be looked upon and evaluated based on immediate job placement data, but also be viewed as a rung on the ladder of education toward a career requiring postsecondary training.(23)

The recognition of vocational education courses for academic credit (cross credit) can be accomplished in the following manner:
- teaching "applied academics" in vocational education courses
- having appropriate vocational education courses satisfy academic credit requirements
- recognizing existing academic subject matter taught in vocational education courses(15)

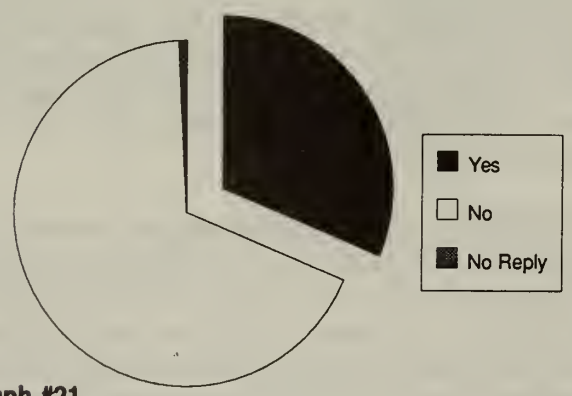
Tech Prep or 2+2 programs in their most common form allow high school students to take coordinated, appropriately sequenced courses designed to culminate in an associate degree or certificate at the completion of a 2 year community college program. These programs use high school and community college faculty to jointly work on curriculum. They involve employers and employees at the outset of every subsequent stage of the process. Enlightened employers offer summer internships, work experience opportunities, teacher-employee exchanges, equipment and virtual guarantees of placement to those who successfully complete the program.(19)

RECOMMENDATION #3: GRADUATION/COLLEGE ENTRANCE REQUIREMENTS

Montana has implemented graduation requirements and university entrance requirements that are limiting students to taking required courses and fewer electives, including vocational courses. It is important that vocational educators, advisory boards and other concerned individuals maintain their awareness of the effect of these requirements on the availability of vocational training, both at the secondary and postsecondary levels.

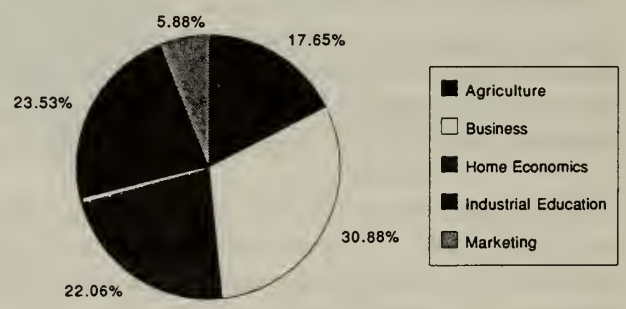
Of the schools surveyed by Tamra Hoyem, 32% stated that their school allows vocational classes to qualify as graduation requirements. The following graphs illustrate this, as well as the program areas that have classes qualifying for graduation requirement.

Some Voc Classes Qualify as Graduation Requirements



Graph #21

Which Voc Areas have classes that Qualify as Grad Requirements



Graph #22

Montana educational requirements will likely experience more changes in the future. Leadership from Montana's vocational education professionals will insure that the primary consideration of any new policy is the welfare of Montana's students. Awareness of policies that are successful in other states will provide a background for educators seeking to improve the status of vocational education in Montana.

In Virginia, a vocational education course is a standard required elective for graduation. Other states, including New York and Arkansas, have approved vocational education courses as alternatives to math, science and communications courses. In Rhode Island, vocational education students can receive a career diploma if they earn the same number of credits required in the college preparation curriculum.(5)

Some states have formed task forces or commissions to examine vocational education's role in public education and economic development. Iowa adopted an ensured-access standard for all Iowa school districts. The standard requires that students have access to ten units of instruction in four or more programs of study in vocational education. Efforts are now being made to have the state legislature approve the accreditation standards with the access provision.(5)

For a large number of high schools, expanding the school day from six to seven periods has proven to be a very successful strategy by which students can complete required courses and select vocational electives within a four-year time period. Articulation agreements have been developed among some high schools, community colleges, and four-year institutions to facilitate transferring into college or university business, engineering technology and allied health programs.(5)

RECOMMENDATION #4: COUNSELING: VOCATIONAL ADVISORY STUDY TEAMS

High schools should set up individual annual reviews of their students with a team consisting of a parent, counselor and a teacher and a person employed in the field the student is interested in pursuing (a mentor). The annual reviews would help the student:

- explore occupational interests.
- become aware of his/her personal academic and vocational strengths.
- become aware of the results of aptitude test results and their implication.
- obtain information on the education required to attain their occupational goal.
- become aware of specific job opportunities locally, state-wide and nationwide.
- become acquainted with supportive adults who are personally interested in his/her success.

In addition to the benefits to the students, departments would have a chance to promote their classes to students, parents, counselors and the community. Potential dropouts may focus their interest on a future that includes a high school education and acquire the motivation to stay in school. Communication between business, labor and education would increase.

Child Study Teams are an integral part of our Special Education departments. Could this be the reason that, as Joe Roberts stated "...Special Ed students are more acclimated to the community, going their own way and making their own living, than the student on the next level..."?(16)

RECOMMENDATION #5: A MATTER TO CONSIDER: NEW CONTENT AREAS?

A Montana vocational education task force should be assigned to study the desirability of promoting new content areas in secondary vocational education.

An advantage of emphasizing new content areas, rather than vocational disciplines, is to offer opportunities for all students in grades 6 to 12, regardless of their specific career objectives. Another plus would be better preparation in the content and understandings needed in modern worklife, in which frequent job and career changes create a demand for highly skilled workers who can respond to change.(22)

The problem, according to Vicki Poole in her proposal for restructuring vocational education, is that vocational education is still organized into occupationally-specific disciplines, most of which date from the early 1900's. The technical skills needed for jobs have changed so radically in this century that the old disciplines no longer represent a realistic division of the skills needed in today's labor market. In addition, many components of contemporary vocational education belong everywhere and nowhere. In whose province, for example, lies the right to teach entrepreneurship? Business concepts? Employability skills? Communications?(22)

Harry Silberman, who chaired the national commission that produced "The Unfinished Agenda", has identified three intrinsic outcomes of concern to teachers of secondary vocational education:
-technical skills and knowledge,
-literacy and communication skills, and
-personal skills and attitudes. (22)

As an alternative to offering five or six vocational disciplines to some secondary students, it may be more appropriate to elaborate Silberman's outcomes and offer all students such disciplines as:

- employability skills and attitudes,
- technology and computer science,
- business operations, economics, and entrepreneurship,
- communications,
- management and leadership development,
- work experience,
- career exploration and planning, and
- family living and consumer affairs. (22)

RECOMMENDATION #6: TECHNOLOGY IN VOCATIONAL EDUCATION

Vocational educators must take advantage of opportunities to incorporate educational technology in their classrooms. Access to the technology of computers, for problem solving as well as networking and courses offered through telecommunications, are providing additional options for change in vocational education.

Vocational leaders should investigate funding available to schools and provide teachers with training and resources to apply for funds.

A system of collecting vocational enrollment data should be established that:
- is consistent in reporting contact hours and duplicate counts
- is not reliant on vocational funding
- isolates data of grades 9-12 from 6-8

A combined effort by the University system, Office of Public Instruction, school counselors and other resources is needed to follow and record the occupational and educational tracks chosen by secondary and postsecondary graduates.

RECOMMENDATION #7: RECOGNITION OF STUDENT & GRADUATE ACCOMPLISHMENTS

Evidences of vocational students' and graduates' successes must be highlighted at both the secondary and postsecondary levels. Information about the benefits of the programs needs to be marketed. It is desirable to increase the amount of publicity for the awards and achievements of vocational students. Emphasis should be placed on the fact that secondary and postsecondary vocational graduates can continue their education at technical schools, colleges and universities.(23)

A. CONCLUSION

While vocational education is not on its deathbed, neither is it on any bed of roses. In fact, many state directors and their subordinates have frequently stated that increased graduation requirements are suppressing enrollment in vocational education.(5)

The recommendations given in this paper for increasing vocational enrollment are based on surveys of Montana high schools, state and national publications and personal interviews with vocational leaders in Montana. They are as follows:

1. Establish ties with business and labor.
2. Strengthen the academic content of vocational courses.
3. Influence changes in graduation and college entrance requirements.
4. Establish an individualized, ongoing, annual review of each student.
5. Consider promoting new vocational content areas.
6. Incorporate technology into the classroom.
7. Recognize achievements of students and graduates.

Whether vocational education has a future in secondary schools may depend on the vocational community's willingness to take action on these recommendations. If we commit ourselves to change, we must give primary consideration to student needs rather than what educators and administrators find convenient or comfortably familiar.

V. APPENDIX

A. TABLE 1

Fiscal Year Full Time Enrollment
Montana Vocational Technical System

	1984-85	1985-86	1986-87	1987-88	1988-89
Agriculture Mechanics	58	39	41	35	21
Renewable Natural Resources	8	5	3	0	0
Business & Management	51	61	83	89	5
Business (Admin.Support)	919	933	917	925	872
Marketing & Distribution	21	32	17	20	75
Engineering & Related Tech.	124	101	90	104	76
Practical Nursing	239	219	204	230	264
Allied Health	144	126	124	126	126
Vocational Home Economics	47	76	63	56	58
General Studies	20	17	13	15	16
Carpentry	33	23	20	22	21
Mechanics & Repairers	652	668	566	570	510
Precision Production	216	199	174	123	124
Transp. & Material Moving	21	20	32	51	49
Unclassified/Undeclared	0	0	0	0	2
TOTAL ENROLLMENT	2553	2519	2347	2366	2219

B. TABLE 2

"*MOST WANTED LIST*" 20 Occupations listed by the U.S. Bureau of Labor Statistics as the ones that will grow in demand most quickly in the 1990's:

1. Paralegals
2. Medical assistants
3. Home health aides
4. Radiologic technologists and technicians
5. Data processing equipment repairers
6. Medical records technicians
7. Medical secretaries
8. Physical therapists
9. Surgical technologists
10. Operations research analysts
11. Securities and financial services sales representatives
12. Travel agents
13. Computer systems analysts
14. Physical and corrective therapy assistants
15. Social welfare service aides
16. Occupational therapists
17. Computer programmers
18. Human services workers
19. Respiratory therapists
20. Corrections officers and jailers

C. REFERENCES

1. Berkhof, Donna M., Project Director of the School to Work Transition Project (STOW), 1990, Great Falls Public Schools, Great Falls, MT.

2. Dayton, Jill D., et al. "Characteristics and Needs of Vocationally Talented High School Students," The Career Development Quarterly, June 1989, Vol. 37, pg. 355-364.

3. DiRusso, Lawrence, et al. "Vocational Education Versus Back to Basics: A Dilemma for Counselors," The School Counselor, November 1989, Vol.37, pg.98-102.

4. Elkin, Otis, et al. "Vocational Education: Not Just Surviving, but THRIVING," Vocational Education Journal, October 1988, Vol.63, No.7, pg.48-50.

5. Frantz, Nevin R., et al. "Is Secondary Vocational Education at Risk?", Vocational Education Journal, October 1988, pg.34-37.

6. French, J.J. "High Ability Dropouts," National Association of Secondary School Principals Bulletin, 1969, Vol.53, pg.67-79.

7. Galambos, Eva C. "A 'High-Tech' or a Service Economy Future?", Phi Kappa Phi Journal, p.38-39.

8. Geewax, Marilyn. "Blue-Collar Work Falls Into Disrepute", Great Falls Tribune, Friday, June 29, 1990, pg.8A.

9. Hoyem, Tamra. "Vocational Education Survey - Montana Secondary Public Schools," Diss. Montana State University 1990.

10. Johnston, David L. "The Need to Retool Vocational Education," The Education Digest, November 89, Vol.IV, No.3, pg.38-39.

11. Korb, A.W., et al. "Summary of Vocational/Technical Program Offerings for Secondary Schools in Montana", 1988, The Center for Vocational Education, Research, Curriculum and Personnel Development, Northern Montana College, Havre, MT.

12. Lee, J.S. "Teaching Talented Students in Vocational Agriculture," Agricultural Education Magazine, 1976, Vol.49, No.2, pg.29-30.

13. Micklus, C.S. "Final Report of Creatively Gifted Students in Vocational Education," 1978, Glassboro State College, Glassboro, NJ, Department of Industrial Education and Technology.

14. Milne, B.G. "Vocational Education for Gifted and Talented Students," 1982, National Center for Research in Vocational Education, Columbus, OH.

15. Montana Council on Vocational Education. "Articulation and Cross Credit Courses - Status, Barriers, Implementation," Public Hearing, October 20, 1989.

16. Montana Council on Vocational Education. "Insuring Secondary Vo-Ed Offerings - Strategies, Approaches, Options," Public Hearing, March 9, 1990.

17. Montana Education Commission for the Nineties & Beyond. "Montana at the Advent of the Millennium," Crossroads, 1990.

18. National Advisory Council on Vocational Education. "First Annual Report," 1969, U.S. Office of Education, Washington, DC.

19. National Center for Research in Vocational Education. "Executive Summary," CenterWork, Vol.2, No.1, September 1990.

20. National Center for Research in Vocational Education. "Vocational Enrollment Patterns Study," 1990, University of California, Berkeley, CA.

21. Office of Public Instruction. Montana Public School Enrollment Data, Fall 1989-90, Nancy Keenan, Superintendent, Helena, MT.

22. Poole, Vicki A., et al. "Restructuring Secondary Vocational Education: A Proposal," Vocational Education Journal, Vol.64, No.4, May 1989, pg.39-49.

23. Rosetti, Rosemarie, et al. "An Examination of Factors Influencing Students Not to Enroll in Secondary Vocational Education," 1990, Department of Agricultural Education, The Ohio State University, Columbus, OH.

24. Stone, T., et al. "Vocational Education: A New Dimension for the Gifted and Talented Students - A Teacher's Resource Guide," 1976, University of South Dakota, Vermillion.

25. Strickland, Deborah C., et al. "Vocational Enrollment Patterns in an Era of Reform: Transitions and Renewal," 1990, National Center for Research in Vocational Education, Virginia Tech Office, Blacksburg, VA

26. United States Congress," Carl D. Perkins Vocational Education Act of 1984".

27. Wenrich, Ralph C. "Meeting Our Commitment to Employment-Bound Youth," The Education Digest, May 1990, pg. 15-16.

Montana Council on Vocational Education
Executive Management Building
1228 - 11th Avenue
Helena, MT 59620

5116

500 copies of this public document were published at an estimated cost of $1.80 per copy, for a total cost of $900.00, which includes $900.00 for printing and $0.00 for distribution.